



# Building Permit Application

## City of Portland, Oregon - Bureau of Development Services

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7310 • TTY 503-823-6868 • www.portlandoregon.gov/bds

### Type of work

- ☒ New construction ☐ Addition/alteration/replacement  
☐ Demolition ☐ Other:

### Category of construction

- ☐ 1 & 2 family dwelling ☒ Commercial/industrial ☐ Accessory building  
☐ Multifamily ☐ Master builder ☐ Other:

### Job site information and location

Job no: 130283 Job address: 5501 NW FRONT AVE.  
 City/State/ZIP: PORTLAND OR 97210  
 Suite/bldg./apt. no.: Project name: FACILITY UPGRADES  
 Cross street/directions to job site: KUTTLIDGE

Subdivision: Lot no. Tax map/parcel no.

### Description of work

INSTALL FIRE SUPPRESSOR RISER ROOM

Provide RS Permit no.

### Property owner

☒ Tenant  
 Name: ARC TERMINALS E-mail: SOBRLEN@JHIENGINEERING.COM  
 Address: 5501 NW FRONT AVE  
 City/State/ZIP: PORTLAND OR 97210  
 Phone: 503 274 4700 FAX: 503 274 9768

**Owner installation:** This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.

Owner signature: Date:

### Contractor

Business name: E-mail:  
 Address: TBD  
 City/State/ZIP:  
 Phone: FAX:  
 CCB lic. no.

Authorized signature:

Print name: Date:

### Applicant

☒ Contact Person

Business name: JHI ENGINEERING  
 Contact name: SEAN OBRLEN  
 Address: 3420 SW MACADAM AVE  
 City/State/ZIP: PORTLAND OR 97210  
 Phone: 503 223 7799 FAX: 503 223 0907  
 E-mail: SOBRLEN@JHIENGINEERING.COM  
 Authorized signature: [Signature]  
 Print name: SEAN OBRLEN Date: 12/19/14

### Office Use Only

Permit no:  
 Date received:  
 By:

### Required Data: One and Two Family Dwelling

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:  
 Number of bedrooms:  
 Number of bathrooms:  
 Total number of floors:  
 New dwelling area: square feet  
 Garage/carport area: square feet  
 Covered porch area: square feet  
 Deck area: square feet  
 Other structure area: square feet

### Required Data: Commercial Use

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:  
 Existing building area: square feet  
 New building area: square feet  
 Number of stories:  
 Type of construction:  
 Occupancy groups  
 Existing:  
 New:

### Notice

All contractors and subcontractors are required to be licensed with the Oregon Construction Contractors Board under ORS 701 and may be required to be licensed in the jurisdiction in which work is being performed.

**Statement of Fact:** I certify that the facts and information set forth in this application are true and complete to the best of my knowledge. I understand that any falsification, misrepresentation or omission of fact (whether intentional or not) in this application or any other required document, as well as any misleading statement or omission, may be cause for revocation of permit and/or certificate of occupancy, regardless of how or when discovered.

I acknowledge that work related to this Building Permit Application may be subject to regulations governing the handling, removal and/or disposal of asbestos and/or lead-based paint. If the work is subject to regulations governing asbestos and/or lead-based paint, I will comply with all such regulations. (initials)

### Building Permit Fees\*

#### Please refer to fee schedule

Fees due upon application  
 Amount received  
 Date received

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.



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**Type of work**

- ☒ New construction ☐ Addition/alteration/replacement  
☐ Demolition ☐ Other:

**Category of construction**

- ☐ 1 & 2 family dwelling ☒ Commercial/industrial ☐ Accessory building  
☐ Multifamily ☐ Master builder ☐ Other:

**Job site information and location**

Job no: B0283 Job address: 5501 NW FRONT AVE  
City/State/ZIP: PORTLAND OR 97210  
Suite/bldg./apt. no.: Project name: FACILITY UPGRADE  
Cross street/directions to job site: KITTRIDGE  
Subdivision: Lot no. Tax map/parcel no.

**Description of work**

INSTALL RAILCAR UNLOADING STRUCTURE

Provide RS Permit no.

☒ Property owner ☒ Tenant

Name: LCP OREGON HOLDINGS E-mail: ARC TERMINALS  
Address: 5501 NW FRONT AVE  
City/State/ZIP: PORTLAND OR 97210  
Phone: 503 273 4700 FAX: 503 274 9758

**Owner installation:** This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.

Owner signature: Date:

**Contractor**

Business name: E-mail:  
Address:  
City/State/ZIP: TBD  
Phone: FAX:  
CCB lic. no.

Authorized signature:

Print name: Date:

☐ Applicant ☒ Contact Person

Business name: JH1 ENGINEERING  
Contact name: SEAN O'BRIEN  
Address: 3420 SW MACADAM AVE  
City/State/ZIP: PORTLAND OR 97210  
Phone: 503 223 7799 FAX: 503 223 0907  
E-mail: SOBRIEN@JH1ENGINEERING.COM  
Authorized signature: [Signature]  
Print name: SEAN O'BRIEN Date: 12/19/14

**Office Use Only**

Permit no:

Date received:

By:

**Required Data: One and Two Family Dwelling**

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Valuation:	
Number of bedrooms:	
Number of bathrooms:	
Total number of floors:	
New dwelling area:	square feet
Garage/carport area:	square feet
Covered porch area:	square feet
Deck area:	square feet
Other structure area:	square feet

**Required Data: Commercial Use**

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Valuation:	
Existing building area:	square feet
New building area:	square feet
Number of stories:	
Type of construction:	
Occupancy groups	
Existing:	
New:	

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**Building Permit Fees\***

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Amount received	
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<b>Type of work</b>		
<input checked="" type="checkbox"/> New construction <input type="checkbox"/> Addition/alteration/replacement		
<input type="checkbox"/> Demolition <input type="checkbox"/> Other:		
<b>Category of construction</b>		
<input type="checkbox"/> 1 & 2 family dwelling <input checked="" type="checkbox"/> Commercial/industrial <input type="checkbox"/> Accessory building		
<input type="checkbox"/> Multifamily <input type="checkbox"/> Master builder <input type="checkbox"/> Other:		
<b>Job site information and location</b>		
Job no: <b>130283</b>	Job address: <b>5501 NW FRONT AVE</b>	
City/State/ZIP: <b>PORTLAND OR 97210</b>		
Suite/bldg./apt. no.:	Project name: <b>FACILITY UPGRADES</b>	
Cross street/directions to job site: <b>KITTRIDGE</b>		
Subdivision:	Lot no.	Tax map/parcel no.
<b>Description of work</b>		
<b>INSTALL FIRE PUMP FOUNDATION</b>		
Provide RS Permit no.		
<input type="checkbox"/> Property owner <input checked="" type="checkbox"/> Tenant		
Name: <b>ARC TERMINALS</b>	E-mail: <b>SOBRIEN@JHIENGINEERING.COM</b>	
Address: <b>5501 NW FRONT AVE</b>		
City/State/ZIP: <b>PORTLAND OR 97210</b>		
Phone: <b>503 273 4700</b>	FAX: <b>503 274 9758</b>	
<b>Owner installation:</b> This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.		
Owner signature:		Date:
<input type="checkbox"/> Contractor		
Business name:		E-mail:
Address:		
City/State/ZIP: <b>TBD</b>		
Phone:	FAX:	
CCB lic. no.		
Authorized signature:		
Print name:		Date:
<input type="checkbox"/> Applicant <input checked="" type="checkbox"/> Contact Person		
Business name: <b>JHI ENGINEERING</b>		
Contact name: <b>SEAN O'BRIEN</b>		
Address: <b>3420 SW MACADAM AVE</b>		
City/State/ZIP: <b>PORTLAND OR 97239</b>		
Phone: <b>503 223-7799</b>	FAX: <b>503 223-0907</b>	
E-mail: <b>SOBRIEN@JHIENGINEERING.COM</b>		
Authorized signature:		
Print name: <b>SEAN O'BRIEN</b>		Date: <b>12/19/14</b>

<b>Office Use Only</b>	
Permit no:	
Date received:	
By:	
<b>Required Data: One and Two Family Dwelling</b>	
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<b>Statement of Fact:</b> I certify that the facts and information set forth in this application are true and complete to the best of my knowledge. I understand that any falsification, misrepresentation or omission of fact (whether intentional or not) in this application or any other required document, as well as any misleading statement or omission, may be cause for revocation of permit and/or certificate of occupancy, regardless of how or when discovered.	
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Fees due upon application	
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**City of Portland, Oregon**  
**Bureau of Development Services**  
**Plan Review / Permitting Services**  
**FROM CONCEPT TO CONSTRUCTION**

# BDS Checksheet Response

Permit #: 14-251904-CO

Date: 1/21/15

Customer name and phone number: TODD ROZENDAL 503-223-7799

*Note:* Check which review you are responding to. Please provide specific information concerning the changes you have made in response to the checksheet. Note the checksheet item number. Describe the change, revision, or correction. Identify the location on the plans (i.e. page number and/or detail number). Use as many lines as needed. *If the item is not in response to a checksheet, write “Applicant” in the column labeled “Checksheet item number.”*

- ☐ Planning      ☐ Structural      ☐ PDOT      ☐ Fire      ☐ Plumbing  
☐ Life Safety      ☐ BES Pollution Prevention      ☐ BES      ☐ Water      ☐ Site Dev.  
☐ Electrical      ☐ Urban Forestry      ☐ Addressing      ☐ Parks & Recreation

Please use this sheet to submit your response to only one of the above review groups. If you need to respond to more than one review group, you will need a separate Checksheet Response Form for each group.

[illegible]



[illegible]

## TRANSMITTAL

TO:

CITY OF PORTLAND, OREGON  
Bureau of Development Services  
1900 SW 4<sup>th</sup> Ave., Suite 5000  
Portland, OR 97210

Date:	January 19, 2015
Project No.:	13-0283
Attention:	Ms. Alice Callison
RE:	ARC Terminals
Transmittal No.:	52

### Deliverables:

- ☒ Prints
- ☐ Specifications
- ☐ Calculations
- ☐ Shop Drawings
- ☐ CD
- ☐ Electronic File

### Format:

- ☐ dwg
- ☐ pdf
- ☐ docx/xlsx

### Delivery Method:

- ☒ Hand Delivered
- ☐ Mail/Overnight
- ☐ E-Mail

Copies/Size	Date	Number	Rev.	Description
4- 42x30	8/5/14	FS-0	3	Cover Sheet/ Site Plan
4- 42x30	8/5/14	FS-1	3	Underground Piping Plan/ Notes
4- 42x30	8/5/14	FS-2	3	Deluge System Piping Plans (Sys. 1-6)
4- 42x30	8/5/14	FS-3	3	Deluge System Piping Plans (Sys. 7-11)
4- 42x30	8/5/14	FS-4	3	Warehouse Dry System Piping Plan
4- 42x30	8/5/14	FS-5	3	Office Dry System Piping Plan/ Section Details
4- 42x30	8/5/14	FS-6	3	Mechanical Details
4- 42x30	8/5/14	FA-1	3	Releasing System Legend and Calculations
4- 42x30	8/5/14	FA-2	3	Releasing System Device Layout (Sys. 1-6)
4- 42x30	8/5/14	FA-3	3	Releasing System Device Layout (Sys. 7-11)

THESE ARE TRANSMITTED as checked below:

- ☐ For Approval
- ☒ For Your Use
- ☐ As Requested
- ☐ For Construction
- ☐ For Review & Comment
- ☐ FOR BIDS DUE TBD 20

### REMARKS:

Fire Suppression For Information Only drawings for permit #14-251964-000-00-CO

Copy to:  
Accounting, File

Approved: ☐

Signed:

  
Sean O'Brien  
Project Manager

JHI ENGINEERING, INC.

## TRANSMITTAL

TO:

CITY OF PORTLAND, OREGON  
Bureau of Development Services  
1900 SW 4<sup>th</sup> Ave., Suite 5000  
Portland, OR 97210

Date:	December 23, 2014
Project No.:	13-0283
Attention:	Ms. Alice Callison
RE:	ARC Terminals
Transmittal No.:	41

### Deliverables:

- ☒ Prints
- ☐ Shop Drawings
- ☐ Specifications
- ☐ CD
- ☒ Calculations
- ☐ Electronic File

### Format:

- ☐ dwg
- ☐ pdf
- ☐ docx/xlsx

### Delivery Method:

- ☒ Hand Delivered
- ☐ Mail/Overnight
- ☐ E-Mail

Copies/Size	Date	Number	Rev.	Description
4- 36x24	12/23/14	G001	0	General Arrangement - Title Sheet and Drawing Index
4- 36x24	12/23/14	G002	0	General Arrangement - Fire Sprinkler Plan
4- 36x24	12/23/14	G003	0	General Arrangement - Partial Existing Building Plan
4- 36x24	12/23/14	G004	0	General Arrangement - Riser Room and Tank Plan
4- 36x24	12/23/14	G005	0	General Arrangement - Pump House & Emergency Generator Plan
4- 36x24	12/23/14	G006	0	General Arrangement - Partial Warehouse Roof Plans & Sections
4- 36x24	12/23/14	G007	0	General Arrangement - Partial Section at Riser Room
4- 36x24	12/23/14	G008	0	General Arrangement - Dorr and Fire Damper Schedule and Details
4- 36x24	12/23/14	G110	0	Safety Shower Plan Location - General Arrangement
4- 36x24	12/23/14	G111	0	Safety Shower Plan Location - Grid 1 to 18

THESE ARE TRANSMITTED as checked below:

- ☒ For Approval
- ☐ For Your Use
- ☐ As Requested
- ☐ For Construction
- ☐ For Review & Comment
- ☐ FOR BIDS DUE TBD 20

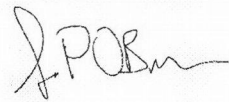
REMARKS:

Copy to:  
Accounting, File

Approved:



Signed:



Sean O'Brien  
Project Manager



Copies/Size	Date	Number	Rev.	Description
4- 36x24	12/23/14	G112	0	Safety Shower Plan Location – Grid 18 to 33
4- 36x24	12/23/14	G113	0	Safety Shower Plan Location – Grid 34 to 49
4- 36x24	12/23/14	G114	0	Safety Shower Plan Location – Grid 50 to 65
4- 36x24	12/23/14	G115	0	Safety Shower Plan Location – Grid 66 to 73
4- 36x24	12/23/14	C001	0	General Notes – Site Works
4- 36x24	12/23/14	C002	0	Erosion Control Site Plan West
4- 36x24	12/23/14	C003	0	Erosion Control Site Plan East
4- 36x24	12/23/14	C004	0	Grading Plan at Entrances
4- 36x24	12/23/14	C005	0	Erosion Control Details
4- 36x24	12/23/14	C014	0	Description: East Containment Area – Drainage Plans
4- 36x24	12/23/14	C015	0	Description: East Containment Area – Drainage Sections & Details
4- 36x24	12/23/14	C016	0	East Containment Sump Pump and Piping
4- 36x24	12/23/14	C018	0	Containment Drainage Sections & Details
4- 36x24	12/23/14	C019	0	West Containment Sump Pump and Piping
4- 36x24	12/23/14	S010	0	Structural General Notes – Sheet 1 of 4
4- 36x24	12/23/14	S011	0	Structural General Notes – Sheet 2 of 4
4- 36x24	12/23/14	S012	0	Structural General Notes – Sheet 3 of 4
4- 36x24	12/23/14	S013	0	Structural General Notes – Sheet 4 of 4
4- 36x24	12/23/14	S200	0	Structural General Arrangement Plan
4- 36x24	12/23/14	S201	0	Rack 1 Pile Plan – Grid 1 to Grid 5
4- 36x24	12/23/14	S202	0	Rack 1 Pile Plan – Grid 5 to Grid 11
4- 36x24	12/23/14	S203	0	Rack 1 Pile Plan – Grid 11 to Grid 17
4- 36x24	12/23/14	S204	0	Rack 1 Pile Plan – Grid 17 to Grid 23
4- 36x24	12/23/14	S205	0	Rack 1 Pile Plan – Grid 23 to Grid 29
4- 36x24	12/23/14	S206	0	Rack 1 Pile Plan – Grid 29 to Grid 34
4- 36x24	12/23/14	S207	0	Rack 2 Pile Plan – Grid 34 to Grid 39
4- 36x24	12/23/14	S208	0	Rack 2 Pile Plan – Grid 39 to Grid 44
4- 36x24	12/23/14	S209	0	Rack 2 Pile Plan – Grid 44 to Grid 50
4- 36x24	12/23/14	S210	0	Rack 2 Pile Plan – Grid 50 to Grid 54
4- 36x24	12/23/14	S211	0	Rack 3 Pile Plan – Grid 54 to Grid 60
4- 36x24	12/23/14	S212	0	Rack 3 Pile Plan – Grid 60 to Grid 66
4- 36x24	12/23/14	S213	0	Rack 1 Foundation Plan – Grid 66 to Grid 73
4- 36x24	12/23/14	S221	0	Rack 1 Foundation Plan – Grid 1 to Grid 5
4- 36x24	12/23/14	S222	0	Rack 1 Foundation Plan – Grid 5 to Grid 11

Copies/Size	Date	Number	Rev.	Description
4- 36x24	12/23/14	S223	0	Rack 1 Foundation Plan – Grid 11 to Grid 17
4- 36x24	12/23/14	S224	0	Rack 1 Foundation Plan – Grid 17 to Grid 23
4- 36x24	12/23/14	S225	0	Rack 1 Foundation Plan – Grid 23 to Grid 29
4- 36x24	12/23/14	S226	0	Rack 1 Foundation Plan – Grid 29 to Grid 34
4- 36x24	12/23/14	S227	0	Rack 2 Foundation Plan – Grid 34 to Grid 39
4- 36x24	12/23/14	S228	0	Rack 2 Foundation Plan – Grid 39 to Grid 44
4- 36x24	12/23/14	S229	0	Rack 2 Foundation Plan – Grid 44 to Grid 50
4- 36x24	12/23/14	S230	0	Rack 2 Foundation Plan – Grid 50 to Grid 54
4- 36x24	12/23/14	S231	0	Rack 3 Foundation Plan – Grid 54 to Grid 60
4- 36x24	12/23/14	S232	0	Rack 3 Foundation Plan – Grid 60 to Grid 66
4- 36x24	12/23/14	S233	0	Rack 3 Foundation Plan – Grid 66 to Grid 73
4- 36x24	12/23/14	S234	0	Foundation Sections and Details – Sheet 1 of 7
4- 36x24	12/23/14	S235	0	Foundation Sections and Details – Sheet 2 of 7
4- 36x24	12/23/14	S236	0	Foundation Sections and Details – Sheet 3 of 7
4- 36x24	12/23/14	S237	0	Foundation Sections and Details – Sheet 4 of 7
4- 36x24	12/23/14	S238	0	Foundation Sections and Details – Sheet 5 of 7
4- 36x24	12/23/14	S239	0	Foundation Sections and Details – Sheet 6 of 7
4- 36x24	12/23/14	S240	0	Foundation Sections and Details – Sheet 7 of 7
4- 36x24	12/23/14	S241	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 1 to Grid 5
4- 36x24	12/23/14	S242	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 5 to Grid 11
4- 36x24	12/23/14	S243	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 11 to Grid 17
4- 36x24	12/23/14	S244	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 17 to Grid 23
4- 36x24	12/23/14	S245	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 23 to Grid 29
4- 36x24	12/23/14	S246	0	Rack 1 Structural Steel Plan @ El 49'-6 3/4" – Grid 29 to Grid 34
4- 36x24	12/23/14	S247	0	Rack 2 Structural Steel Plan @ El 49'-6 3/4" – Grid 34 to Grid 39
4- 36x24	12/23/14	S248	0	Rack 2 Structural Steel Plan @ El 49'-6 3/4" – Grid 39 to Grid 44
4- 36x24	12/23/14	S249	0	Rack 2 Structural Steel Plan @ El 49'-6 3/4" – Grid 44 to Grid 50
4- 36x24	12/23/14	S250	0	Rack 2 Structural Steel Plan @ El 49'-6 3/4" – Grid 50 to Grid 54
4- 36x24	12/23/14	S251	0	Rack 3 Structural Steel Plan @ El 49'-6 3/4" – Grid 54 to Grid 60
4- 36x24	12/23/14	S252	0	Rack 3 Structural Steel Plan @ El 49'-6 3/4" – Grid 60 to Grid 66
4- 36x24	12/23/14	S253	0	Rack 3 Structural Steel Plan @ El 49'-6 3/4" – Grid 66 to Grid 73
4- 36x24	12/23/14	S254	0	Rack 1 West Stairs, Rack 1 East Stairs – Plans and Sections
4- 36x24	12/23/14	S255	0	Rack 1 Center Stairs, Pipe Bridge Crossover – Plans
4- 36x24	12/23/14	S256	0	Rack 1 Center Stairs – Section
4- 36x24	12/23/14	S257	0	Pipe Bridge Stairs, Stair Tower – Sections and Elevations

Copies/Size	Date	Number	Rev.	Description
4- 36x24	12/23/14	S258	0	Rack 2 West Stairs, Rack 2 Center Stairs – Plans and Sections
4- 36x24	12/23/14	S259	0	Rack 2 Center Stairs, Pipe Bridge Crossover – Plans
4- 36x24	12/23/14	S260	0	Rack 3 Center Stairs, Rack 3 East Stairs – Plans and Sections
4- 36x24	12/23/14	S261	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 1 to Grid 5
4- 36x24	12/23/14	S262	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 5 to Grid 11
4- 36x24	12/23/14	S263	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 11 to Grid 17
4- 36x24	12/23/14	S264	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 17 to Grid 23
4- 36x24	12/23/14	S265	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 23 to Grid 29
4- 36x24	12/23/14	S266	0	Rack 1 Structural Steel Plan @ El 59'-11" – Grid 29 to Grid 34
4- 36x24	12/23/14	S267	0	Rack 2 Structural Steel Plan @ El 59'-11" – Grid 34 to Grid 39
4- 36x24	12/23/14	S268	0	Rack 2 Structural Steel Plan @ El 59'-11" – Grid 39 to Grid 44
4- 36x24	12/23/14	S269	0	Rack 2 Structural Steel Plan @ El 59'-11" – Grid 44 to Grid 50
4- 36x24	12/23/14	S270	0	Rack 2 Structural Steel Plan @ El 59'-11" – Grid 50 to Grid 54
4- 36x24	12/23/14	S271	0	Rack 3 Structural Steel Plan @ El 59'-11" – Grid 54 to Grid 60
4- 36x24	12/23/14	S272	0	Rack 3 Structural Steel Plan @ El 59'-11" – Grid 60 to Grid 66
4- 36x24	12/23/14	S273	0	Rack 3 Structural Steel Plan @ El 59'-11" – Grid 66 to Grid 73
4- 36x24	12/23/14	S274	0	Structural Steel Sections and Details – Sheet 1 of 4
4- 36x24	12/23/14	S275	0	Structural Steel Sections and Details – Sheet 2 of 4
4- 36x24	12/23/14	S276	0	Structural Steel Sections and Details – Sheet 3 of 4
4- 36x24	12/23/14	S277	0	Structural Steel Sections and Details – Sheet 4 of 4
4- 36x24	12/23/14	S278	0	Pipe Bridge Rack 1 to Rack 2 – Truss Plans and Elevation
4- 36x24	12/23/14	S279	0	Pipe Bridge Rack 2 to Rack 3 – Truss Plans and Elevation
4- 36x24	12/23/14	S280	0	Structural Steel Sections and Details – Sheet 1 of 3
4- 36x24	12/23/14	S281	0	Structural Steel Sections and Details – Sheet 2 of 2
4- 36x24	12/23/14	S282	0	Structural Steel Sections and Details – Sheet 3 of 3
4- 36x24	12/23/14	S285	0	Rack 1 thru Rack 3 – Typical Cross Section looking West
4- 36x24	12/23/14	S291	0	Secondary Containment – Drainage Profile
4- 36x24	12/23/14	S300	0	Fire Suppression Utilities – Partial Existing Plan
4- 36x24	12/23/14	S301	0	Fire Suppression Utilities – Riser Room Foundation and Roof Framing Plans
4- 36x24	12/23/14	S302	0	Fire Suppression Utilities – Partial Warehouse Roof Plan
4- 36x24	12/23/14	S303	0	Fire Suppression Utilities – Foundation Plan, Sections and Details
4- 36x24	12/23/14	S304	0	Fire Suppression Utilities – Riser and Pump House Room CMU Wall Elevations
4- 36x24	12/23/14	S305	0	Fire Suppression Utilities – CMU Wall Sections and Details
4- 36x24	12/23/14	S306	0	Fire Suppression Utilities – Conduit Pipe Trenching
4- 36x24	12/23/14	P70	0	West Containment Sump Pump – Piping Isometric

Copies/Size	Date	Number	Rev.	Description
4- 36x24	12/23/14	P126	0	Containment Sumps P&ID
4- 36x24	12/23/14	E010	0	Electrical - General Arrangement Plan
4- 36x24	12/23/14	E011	0	Grounding plan - Grid 1 to 18
4- 36x24	12/23/14	E012	0	Grounding plan - Grid 18 to 34
4- 36x24	12/23/14	E013	0	Grounding plan - Grid 34 to 50
4- 36x24	12/23/14	E014	0	Grounding plan - Grid 50 to 66
4- 36x24	12/23/14	E015	0	Grounding plan - Grid 66 to 73
4- 36x24	12/23/14	E016	0	Grounding plan - Fire Pump House & Emergency Generator
4- 36x24	12/23/14	E017	0	Grounding Section - Typical Cross Section Looking West
4- 36x24	12/23/14	E018	0	Grounding Details
4- 36x24	12/23/14	E019	0	Lighting plan - Grid 1 to 18
4- 36x24	12/23/14	E020	0	Lighting plan - Grid 18 to 34
4- 36x24	12/23/14	E021	0	Lighting plan - Grid 34 to 50
4- 36x24	12/23/14	E022	0	Lighting plan - Grid 50 to 66
4- 36x24	12/23/14	E023	0	Lighting plan - Grid 66 to 73
4- 36x24	12/23/14	E024	0	Warehouse #2 & #3, Riser Room & Pump House - Partial Electrical Plan
4- 36x24	12/23/14	E025	0	Electrical - MCC -18 Data Sheet
4- 36x24	12/23/14	E026	0	Electrical - MCC 200 Data Sheet - Sheet 1 of 2
4- 36x24	12/23/14	E027	0	Electrical - MCC 200 Data Sheet - Sheet 2 of 2
4- 36x24	12/23/14	E028	0	Electrical Panel Schedules
4- 36x24	12/23/14	E029	0	Lighting Plan - Typical Cross Section & Mounting Details
4- 36x24	12/23/14	E031	0	Electrical - Lab/Locker Room & Main Office Building Plan
4- 36x24	12/23/14	E032	0	Electrical - Warehouse #2 & #3 Lighting Plan
4- 36x24	12/23/14	E040	0	Electrical - Specifications - Sheet 1 of 9
4- 36x24	12/23/14	E041	0	Electrical - Specifications - Sheet 2 of 9
4- 36x24	12/23/14	E042	0	Electrical - Specifications - Sheet 3 of 9
4- 36x24	12/23/14	E043	0	Electrical - Specifications - Sheet 4 of 9
4- 36x24	12/23/14	E044	0	Electrical - Specifications - Sheet 5 of 9
4- 36x24	12/23/14	E045	0	Electrical - Specifications - Sheet 6 of 9
4- 36x24	12/23/14	E046	0	Electrical - Specifications - Sheet 7 of 9
4- 36x24	12/23/14	E047	0	Electrical - Specifications - Sheet 8 of 9
4- 36x24	12/23/14	E048	0	Electrical - Specifications - Sheet 9 of 9
4- 36x24	12/23/14	E061	0	Electrical - Rack 1 E-stop Panel Details
4- 36x24	12/23/14	E062	0	Electrical - Rack 2 E-stop Panel Details
4- 36x24	12/23/14	E063	0	Electrical - Rack 3 E-stop Panel Details



[illegible]

# LISA Buellesbach

## Structural Checksheet Response

Permit #: 14-251964-000-00-CO

Date: February 23, 2015

Customer name and phone number:

Sean O'Brien – 503-223-7799

Note: Please number each change in the '#' column. Use as many lines as necessary to describe your changes. Indicate which reviewer's checksheet you are responding to and the item your change addresses. If the item is not in response to a checksheet, write **customer** in the last column.

#	Description of changes, revisions, additions, etc.	Checksheet and item #
1	Please see the attached completed special inspection form. The Statement of Special Inspection is shown on sheets S012 and S013. The stages requiring structural observation are listed in Division 1.E Structural Observations on drawing S010.	Structural #1
2	The foam tank will be added to the deferred submittal list on drawing G001. Once we have reviewed and approved the deferred submittals from the contractor, the deferred submittals will be submitted to the City of Portland for review and approval.	Structural #2
3	See revision 1 on S301 tank data was added per note 7 & 8. See revision 1 on G001 foam tank added as deferred submittal.	Structural #3
4	See revision 1 on S301 pump skid weight was added per note 9. See revision 1 on S305 section V for skid anchor size & number. See additional calculations Fire Foam Skid Anchorage on pages 1 of 2 and 2 of 2.	Structural #4
5	Please see section 6.2 and Appendix B in the revised Geotechnical Report.	Structural #5 Site Development #3
6	The structural engineer and geotechnical engineer have discussed the impacts of liquefaction on the proposed structure. The design team feels the required measures to accommodate and/or completely mitigate the predicted settlement and lateral spread discussed in the geotechnical report are cost-prohibitive for the proposed utility rack and would not result in an increased measure of safety given the existing surrounding infrastructure (i.e. tanks, railroad tracks, buildings, etc.) the utility rack is servicing, was originally constructed without regard to liquefaction. The proposed structure is in a restricted access facility where the general population will not have access and the proposed rack provides personnel access to the top of rail cars as well as supports process and fire suppression piping. The structural engineer has taken measures to minimize the impacts of liquefaction by rigidly connecting the piles in both the transverse direction with the pile cap and the longitudinal direction with the continuous concrete drainage trench.	Structural #5 Site Development #4
7	Please see Appendix D in the attached revised geotechnical report. The micropile general notes were revised and coordinated with the requirements in the geotechnical report. Please see the new sheet S014 which lists the micropile testing requirements consistent with the geotechnical report.	Structural #5 Site Development #5
8	Please see new drawing S014 which now lists the gangway weights along with the piping and weights the access platform was designed for. Please see drawings FS-2, FS-3, and FS-6 by MINIMAX at the end of the drawing set for information on the piping for the foam fire suppression system. The W10's at approximate elevation 60' support the piping and nozzles	Structural #6



# JHI

## Engineering, Inc.

JHI Job No.: 13-0283 Page 1 of 2  
Date: FEB 2015  
Project: FOAM TANK  
Client: ARC TERMINALS  
By: JLP Dept.: STRUCTURAL  
Design Item: FIRE FOAM SKID ANCHORAGE  
REV 1 RESPONSE TO STRUCTURAL CHECKSHEET

### Seismic base shear at fire foam skid

per ASCE 7-10, Chapter 13 Seismic Design Requirements For Nonstructural Components

Risk Category 3  $I_e = 1.25$   $\rho = 1.0$

h	1 ft.	average roof height of structure with respect to the base
z	1 ft.	height in structure of point of attachment with respect to the base
$R_p$	2.5	component response modification factor (table 13.5-1 or 13.6-1)
$W_p$	4,550 lb.	(2) motors = 900 lb, (2) pumps = 400 lb, piping and frame = 500 lbs
$I_e$	1.25	component importance factor
$a_p$	1.0	component amplification factor (table 13.5-1 or 13.6-1)
$S_{DS}$	0.61	spectral acceleration, short period

Seismic Design Force ( $F_p$ )

$1,041 \text{ lb.}$   $F_p$  lower limit per eq. 13.3-3  $F_p = 0.3 S_{DS} I_p W_p$   $z/h = 1$

$1,665 \text{ lb.}$   $F_p$  per eq 13.3-1

$$F_p = \frac{0.4 a_p S_{DS} W_p}{\left( \frac{R_p}{I_p} \right)} \left( 1 + 2 \frac{z}{h} \right)$$

$5,551 \text{ lb.}$   $F_p$  upper limit per eq. 13.3-2

$$F_p = 1.6 S_{DS} I_p W_p$$

$F_p = 1,665 \text{ lb.}$  % Operating Wt. = 36.6%

### Determine Stability & Connection Forces

$E_h$  = seismic force per section 12.4-3 =  $\rho Q E$  =

$E_v$  = seismic force per section 12.4-4 =  $0.2 S D_s(D)$  =

$W_p = 4550 \text{ lb}$

Arm 1 = 3.50 ft

Arm 2 = 6.50 ft

At skid to floor interface:

Center of Gravity H = 2.00 ft

OTM =  $E_h \times H = 3,331 \text{ ft-lb}$

RM =  $0.9 W_p \times (\text{Arm 1}) = 14,333 \text{ ft-lb}$

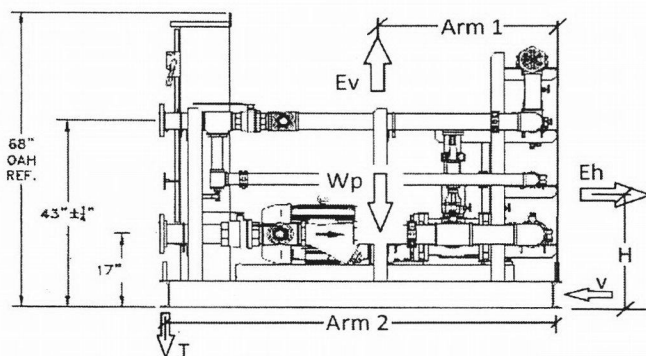
OTM SF = 4.30 T=0 no uplift

$V = E_h = 1,665 \text{ lb}$

SHEAR:

Per anchor =  $V/4 = 416 \text{ lb per anchor}$

1,665 lb  
555 lb up or down



Use: 1/2" diameter threaded rod set in Hilti-Hit RE 500 adhesive embed 4" minimum into concrete.  
See Hilti Profis for calculation



Specifier's comments: Foam Pump Skid Anchors

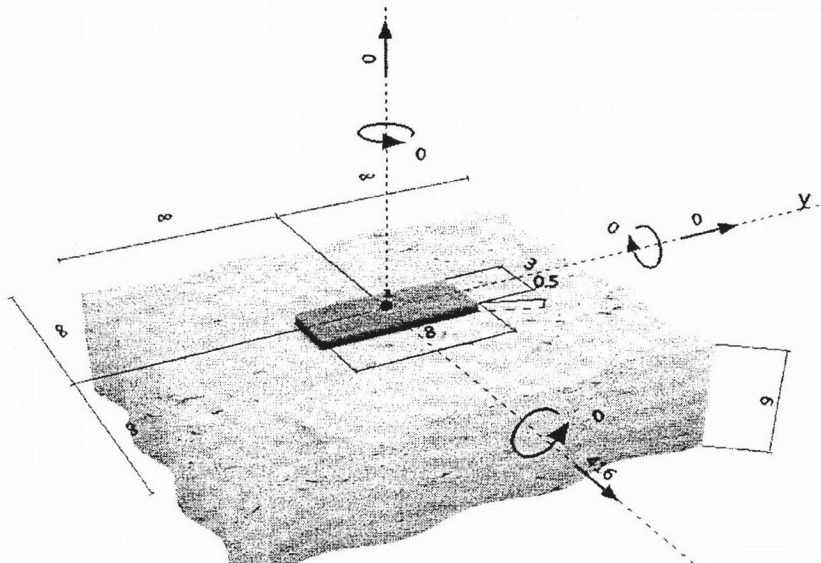


Profis Anchor 2.4.8

## 1 Input data

Anchor type and diameter: HIT-RE 500-SD + HAS B7 1/2  
 Effective embedment depth:  $h_{ef,act} = 4.000$  in. ( $h_{ef,limit} = -$  in.)  
 Material: ASTM A 193 Grade B7  
 Evaluation Service Report: ESR-2322  
 Issued / Valid: 2/1/2014 / 4/1/2016  
 Proof: design method ACI 318-11 / Chem  
 Stand-off installation:  $e_b = 0.000$  in. (no stand-off);  $t = 0.500$  in.  
 Anchor plate:  $l_x \times l_y \times t = 3.000$  in.  $\times$   $8.000$  in.  $\times$   $0.500$  in.; (Recommended plate thickness: not calculated)  
 Profile: no profile  
 Base material: cracked concrete, 4000,  $f'_c = 4000$  psi;  $h = 6.000$  in., Temp. short/long: 32/32 °F  
 Installation: hammer drilled hole, installation condition: dry  
 Reinforcement: tension: condition B, shear: condition B; no supplemental splitting reinforcement present  
 edge reinforcement: none or  $\leq$  No. 4 bar  
 Seismic loads (cat. C, D, E, or F) Tension load: yes (D.3.3.4.3 (a))  
 Shear load: yes (D.3.3.5.3 (a))

Geometry [in.] & Loading [lb, in.lb]



## 2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization		
Loading	Proof	Load	Capacity	$\beta_N / \beta_V$ [%]	Status	
Tension	-	-	-	- / -	-	
Shear	Steel Strength	416	4842	- / 9	OK	
Loading		$\beta_N$	$\beta_V$	$\zeta$	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads		-	-	-	-	-

# YE

## Site Development Checksheet Response

Permit #: 14-251964/968-000-00-CO

Date: February 23, 2015

Customer name and phone number:

Sean O'Brien – (503) 223-7799

*Note: Please number each change in the '#' column. Use as many lines as necessary to describe your changes. Indicate which reviewer's checksheet you are responding to and the item your change addresses. If the item is not in response to a checksheet, write **customer** in the last column.*

#	Description of changes, revisions, additions, etc.	Checksheet and Item #
1	Please see section 6.2 and Appendix B in the attached revised Geotechnical Report.	Site Development #2
2	Please see section 6.2 and Appendix B in the attached revised Geotechnical Report.	Site Development #3
3	The structural engineer and geotechnical engineer have discussed the impacts of liquefaction on the proposed structure. The design team feels that the required measures to accommodate and/or completely mitigate the predicted settlement and lateral spread discussed in the geotechnical report are cost-prohibitive for the proposed utility rack and would not result in an increased measure of safety given the existing surrounding infrastructure (i.e. tanks, railroad tracks, buildings, etc.) the utility rack is servicing, was originally constructed without regard to liquefaction. The proposed structure is in a restricted access facility where the general population will not have access and the proposed rack provides personnel access to the top of rail cars as well as supports process and fire suppression piping. The structural engineer has taken measures to minimize the impacts of liquefaction by rigidly connecting the piles in both the transverse direction with the pile cap and the longitudinal direction with the continuous concrete drainage trench.	Site Development #4
4	Please see Appendix D in the attached revised geotechnical report. The micropile general notes were revised and coordinated with the requirements in the geotechnical report. Please see the new sheet S014 which lists the micropile testing requirements consistent with the geotechnical report.	Site Development #5

(For office use only)

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